



Influence of hydration in the mantle wedge on the evolution of an ocean/continent system: a numerical simulation

M Roda (1), A. M. Marotta (1), and M. I. Spalla (2)

(1) Sezione di Geofisica, Dipartimento di Scienze della Terra "Ardito Desio", Università degli Studi di Milano, Italia, (2) Sezione di Geologia, Dipartimento di Scienze della Terra "Ardito Desio", Università degli Studi di Milano, Italia

The evolution of an ocean/continent subduction system is simulated by using a 2D finite elements thermo-mechanical model. The effects of hydration in mantle wedge on mantle flow and on crustal recycling is studied for different hydration rates and maximum depth of dehydration of the oceanic crust for two selected typical subduction velocities (1 cm/a and 5 cm/a). We found a direct relationship between the amount of recycled material and the maximum depth of dehydration. Moreover, the hydration rate and hydration depth have an important impact on peak pressure and temperature of recycled continental crust for a subduction rate of 5 cm/a.